The following Listing of the Claims will replace all prior versions and all prior listings of the claims in the present application.

Listing of the Claims

1. (Currently amended) An isolated nucleic acid molecule which is selected from the group consisting of:

a) a nucleic acid molecules which encodes a polypeptide which contains the amino acid sequence disclosed by SEQ ID NO: 2;

b) a nucleic acid molecules which contains the sequence depicted by SEQ ID NO: 1;

c) a nucleic acid molecules whose complementary strand hybridizes with a nucleic acid molecule from a) or b) under stringent conditions and which encodes a polypeptide which exhibits the biological function of a photoprotein;

d) a nucleic acid molecules which differs from the nucleic acid molecules of ~~mentioned under~~ c) due to the degeneracy of the genetic code;

e) a nucleic acid molecules which exhibits a sequence homology with SEQ ID NO: 1 of at least 95% and encodes a polypeptide which has the biological function of a photoprotein; and

f) a nucleic acid molecules which exhibits a sequence homology with SEQ ID NO: 1 of at least 65% and encodes a polypeptide which has the biological function of a photoprotein.

2. (Currently amended) An isolated nucleic acid molecule which is selected from the group consisting of:

a) a nucleic acid molecules which encodes a polypeptide which contains the amino acid sequence disclosed by SEQ ID NO: 3;

b) a nucleic acid molecules which contains the sequence depicted by SEQ ID NO: 4;

c) a nucleic acid molecules whose complementary strand hybridizes with a nucleic acid molecule from a) or b) under stringent conditions and which encodes a peptide which exhibits the biological function of a signal or leader peptide;

d) a nucleic acid molecules which differs from the nucleic acid molecules mentioned under c) due to the degeneracy of the genetic code;

e) a nucleic acid molecules which exhibits a sequence homology with SEQ ID NO: 4 of at least 90% and encodes a peptide which has the biological function of a signal or leader peptide; and

f) a nucleic acid molecules which exhibits a sequence homology with SEQ ID NO: 4 of at least 60% and encodes a peptide which has the biological function of a signal or leader peptide.

3. (Currently amended) An isolated nucleic acid molecule which is selected from the group consisting of:

a) a nucleic acid molecules which encodes a polypeptide which contains the amino acid sequence disclosed by SEQ ID NO: 6;

b) a nucleic acid molecules which contains the sequence depicted by SEQ ID NO: 5;

c) a nucleic acid molecules whose complementary strand hybridizes with a nucleic acid molecule from a) or b) under stringent conditions and which encodes a polypeptide which exhibits the biological function of a photoprotein;

d) a nucleic acid molecules which differs from the nucleic acid molecules mentioned under c) due to the degeneracy of the genetic code;

e) a nucleic acid molecules which exhibit a sequence homology with SEQ ID NO: 5 of at least 95% and encodes a polypeptide which has the biological function of a photoprotein; and

f) a nucleic acid molecules which exhibits a sequence homology with SEQ ID NO: 5 of at least 80% and encodes a polypeptide which has the biological function of a photoprotein.

4. (Currently amended) ~~A~~ The nucleic acid as claimed in claim 1, which contains a functional promoter 5' to ~~the~~ its coding sequence.

5. (Currently amended) A recombinant DNA or RNA vector which contains the [[a]] nucleic acid as claimed in claim 4.

6. (Currently amended) An organism which harbors ~~a~~ the vector as claimed in claim 5.

7. (Currently amended) An isolated oligonucleotide having more than 10 consecutive nucleotides which is identical or complementary to a constituent sequence of ~~a~~ the nucleic acid molecule as claimed in claim 1.

8. (Currently amended) An isolated polypeptide which is encoded by a nucleic acid sequence as claimed in claim 1.

9. (Currently amended) A method for expressing the polypeptide as claimed in claim 8 in bacteria, a viral systems, yeasts or a eukaryotic cells or in an in-vitro expression systems by expressing said polypeptide.

10. (Cancel)

11. (Currently amended) ~~A~~ An isolated peptide having more than 5 consecutive amino acids which is recognized immunologically by antibodies directed against the photoprotein mtClytin.

12. (Currently amended) ~~A~~ An isolated peptide having more than 5 consecutive amino acids which is recognized immunologically by antibodies directed against the photoprotein clytin-2.

13. (Currently amended) ~~A~~ An isolated peptide having more than 5 consecutive amino acids which is recognized immunologically by antibodies directed against the signal or leader peptide disclosed by SEQ ID NO: 3.

14. (Original) The use of a nucleic acid as claimed in claim 1 as a marker gene or reporter gene.

15. (Original) The use of a photoprotein as claimed in claim 8 as a label or reporter.

16. (Original) The use of a nucleic acid which contains the sequence depicted as SEQ ID NO: 4 as a signal or leader sequence.

17. (Original) The use of a peptide which contains the sequence depicted as SEQ ID NO: 3 as a signal or leader peptide.

18. (Original) The use as claimed in claim 16 or 17 for transporting a protein which is fused to the signal or leader peptide into cell organelles.

19. (Original) The use as claimed in claim 18, wherein the cell organelles are mitochondria or the endoplasmic reticulum (ER).

20. (Original) The use of the polypeptides as claimed in claim 8 as reporter proteins in searching for pharmacological active compounds.

21. (Currently amended) The use of the nucleic acids as claimed in claim 1 as a reporter genes in searching for pharmacologically active compounds.